EPA/ROD/R04-00/158
2000

EPA Superfund
Record of Decision:

TOWER CHEMICAL CO.
EPA ID: FLD004065546
OU 02
CLERMONT, FL
08/23/2000

INTERIM ACTION
RECORD OF DECISION

Summary of Remedial Alternative Selection

for the

Tower Chemical Site
Clermont, Lake County, Florida

Prepared by the
United States
Environmental
Protection Agency

TABLE OF CONTENTS

LIST OF FIGURES

List of Tables

INTERIM ACTION RECORD OF DECISION

Part 1: Declaration

Site Name and Location

Tower Chemical Site, CERCLIS ID # FLD004065546
Town of Clermont, Lake County, Florida

Statement of Basis and Purpose

This decision document presents the selected interim remedial action for the offsite groundwater contamination at the Tower Chemical Site, located east of the Town of Clermont, Lake County, Florida, which was chosen in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

This decision is based on the Administrative Record for the Tower Chemical Site. The State of Florida, as represented by the Florida Department of Environmental Protection (FDEP), has reviewed the documents which are included in the Administrative Record for the site. In accordance with 40 CFR 300.430, as the support agency, FDEP has provided EPA with input on those reports. The State of Florida concurs with the selected remedy.

Assessment of the Site

The response action selected in this Interim Action Record of Decision (IAROD) is necessary to protect the public health or welfare from actual or threatened releases of hazardous substances into the environment. This is the second operable unit for the Tower Chemical Site.

Description of the Selected Remedy

This remedy addresses the threat to the potable water surrounding the site posed by the environmental conditions at this site.

The major components of the interim action remedy include:

- installation of carbon adsorption units at the estimated seven potable water wells located in the immediate vicinity around the site; and
- sampling and analysis of the offsite potable and monitoring wells for site-related contaminants.

Statutory Determination

This interim action is protective of human health and the environment in the short term and is intended to provide adequate protection until a final Record of Decision (ROD) is signed; it complies with these federal and state requirements that are applicable or relevant and appropriate for this limited-scope action; and it is cost-effective. This action is an interim solution only, and is not intended to utilize permanent solutions and alternative treatment technologies to the maximum extent practicable for this operable unit. Because this action does not constitute the final remedy for the Tower Chemical Site, the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element will be addressed by the final response action. Subsequent actions are planned to address fully the threats posed by conditions at this site. Because this remedy will result in hazardous substances remaining on-site above health-based levels, a review will be conducted to ensure that the remedy continues to provide adequate protection of human health and the environment within five years after commencement of the remedial action. Because this is an IAROD, review of this site remedy will be ongoing as EPA continues to develop remedial alternatives for the Tower Chemical Site.

ROD Data Certification Checklist

The following information is included in the Decision Summary section of this IAROD. Additional information can be found in the Administrative Record for this site.

- The primary concern at the site is the presence of site-related contaminants in the offsite Floridan potable and monitoring wells. Xylene, a site-related contaminant, has recently been detected at 720 parts per billion (ppb) in an onsite well and has been found at 9 ppb in an offsite Floridan monitoring well. Dichlorobenzophenone (DCBP), a breakdown product of chlorobenzilate and a pesticide formulated at the Tower Chemical Company, has recently been detected at a concentration of 2,000 ppb in onsite wells and has been detected in the recent past at 0.87 ppb in an offsite Floridan monitoring well.

- Although the detected offsite concentrations, of xylene have been well below the State of Florida and federal drinking water standards, a standard for DCBP does not currently exist. This is due to the paucity of toxicological data for this compound. A provisional reference dose for DCBP would result in a remediation goal of 1,100 ppb if the compound is not a carcinogen and 0.25 ppb if DCBP is a carcinogen.

- The selected interim remedy will remain in effect until a final remedy for the site's contaminated soil and groundwater has been successfully implemented.

- The cost of remedy was estimated over a 10 year period. The total estimated capital cost for the interim remedy is $ 40,400 and the total ten year monitoring and operation

and maintenance cost is $179,000. This results in a present worth cost of $ 169,000.

- The selected interim remedy was chosen because it represents the most effective remedial strategy, taking into consideration effectiveness versus cost.

Richard D. Green, Director
Waste Management Division

23 AUG '00

Date

Part 2: Decision Summary

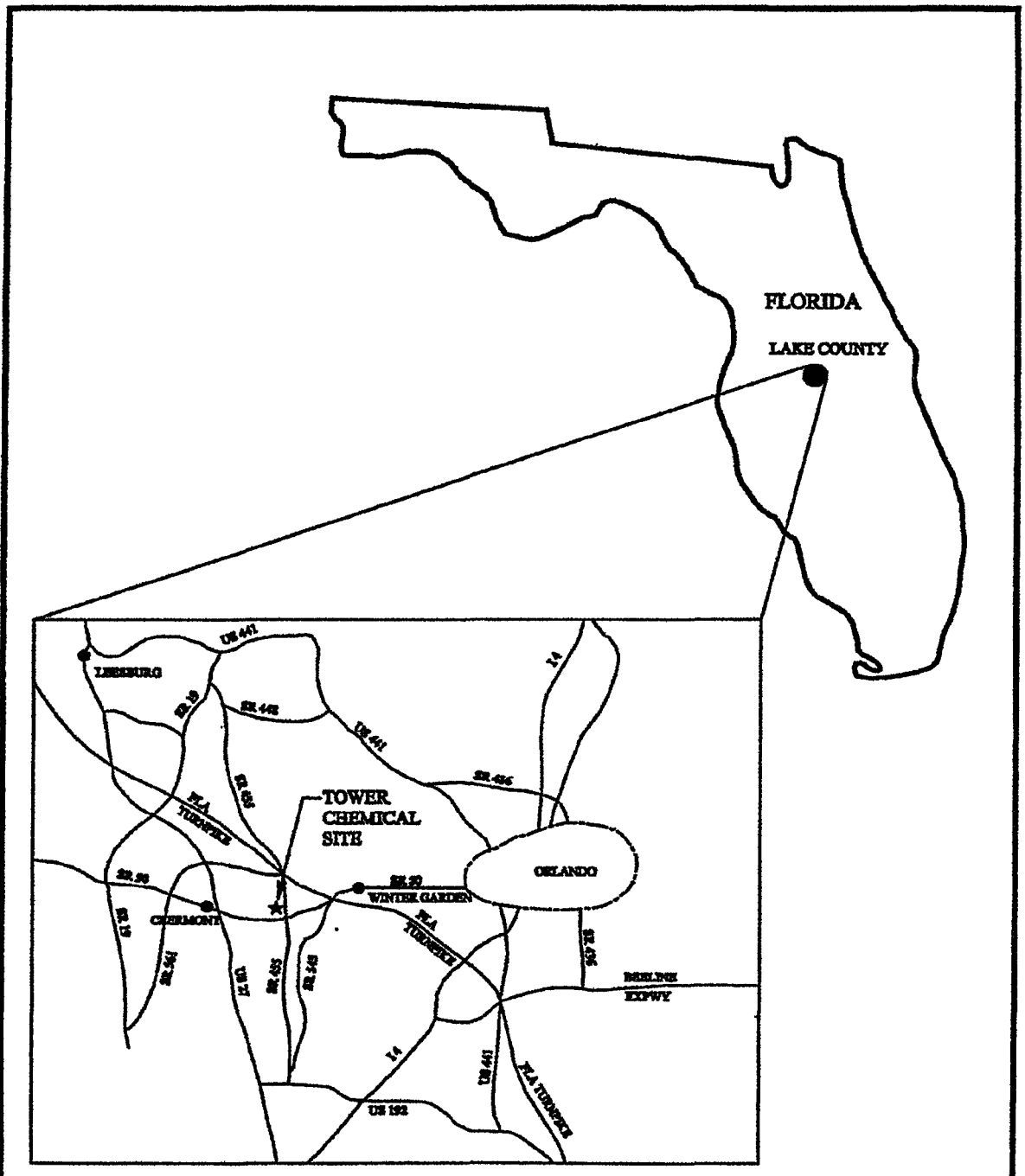
1.0 SITE LOCATION AND DESCRIPTION

The Tower Chemical Site is located off of County Road 455 along the eastern boundary of Lake County, Florida. The 14 acre site is located 3.8 miles east of Clermont, Florida and 15 miles west of Orlando, Florida (Figure 1). The main facility (Figure 2) consists of a production building, a small utility building, an office building and two former disposal areas: a burn/burial area for solid wastes and a percolation/evaporation pond for acidic waste waters.

The site is relatively flat across the main facility with only about five feet of relief. Runoff from the site drains into swampy areas which eventually drain into an unnamed stream, located north of the site. This stream, in turn, drains into the Gourd Neck area of Lake Apopka.

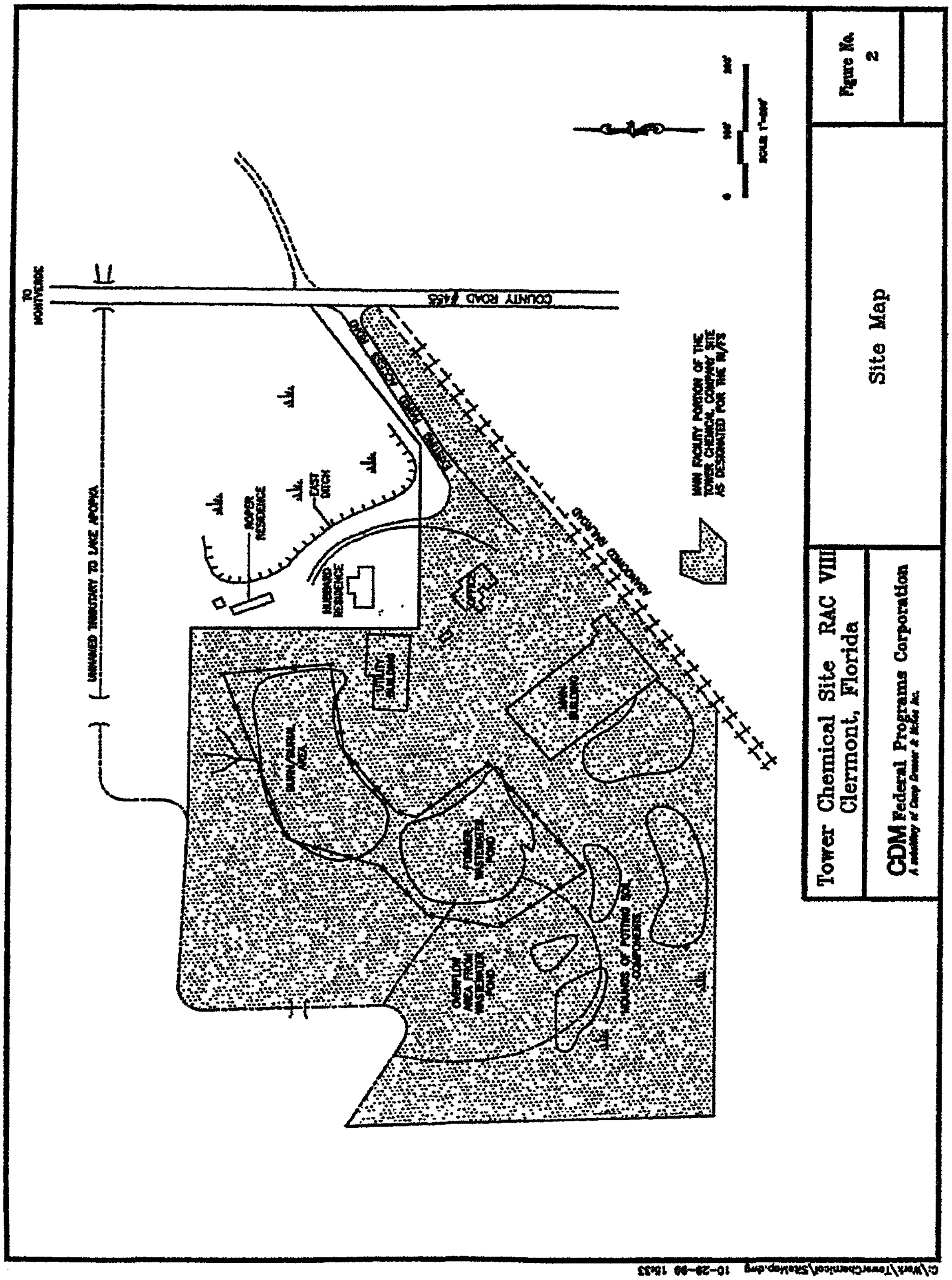
The site is bordered to the east by residences, on the south by a former railroad right-of-way and a residence, and on the west and northwest by a large swamp. The distance to the nearest residence is 200 feet.

Locally there is no municipal water supply. The nearby residents rely solely on private wells which withdraw water from the Floridan aquifer for domestic use.



Tower Chemical Site RAC VIII Clermont, Florida	Location Map	Figure No. 1
CDM Federal Programs Corporation A subsidiary of Camp Dresser & McKee Inc.		

C:\Work\TowerChemical\Location.dwg 10-29-99 15:25


TO MONTVERDE
COUNTY ROAD #455
UNNAMED TRIBUTARY TO LAKE APOPKA
ABANDONED RAILROAD
ROPER RESIDENCE
EAST DITCH
HUBBARD RESIDENCE
UTILITY BUILDING
MAIN BUILDING
BURN/BURIAL AREA
FORMER WASTEWATER POND
OVERFLOW AREA FROM WASTEWATER POND
MOUNDS OF POTTING SOIL COMPONENTS
MAIN FACILITY PORTION OF THE TOWER CHEMICAL COMPANY SITE AS DESIGNATED FOR THE RI/FS
Tower Chemical Site RAC VIII
Clermont, Florida
CDM Federal Programs Corporation
Site Map
Figure No. 2

2.0 SITE HISTORY AND ENFORCEMENT ACTIVITIES

Site History

From 1957 to 1981, the Tower Chemical Company manufactured, formulated and stored various pesticides. The two main products produced by the Tower Chemical Company were chlorobenzilate (a miticide) and a copper-based agricultural fungicide. In order to produce chlorobenzilate it was necessary to either buy or manufacture the compound dichlorobenzil. During periods in which dichlorobenzil was difficult to obtain, the Tower Chemical Company manufactured it in-house from dichloro-diphenyl-trichloroethane, (DDT). This method was used during the last few months of the Company's operation.

Acidic waste waters were produced during the manufacturing process. These waste waters were discharged into the unlined wastewater pond located at the main facility. The burn/burial area had historically been used as a burning area for disposal of the company's solid chemical wastes and for burial of solid wastes. The buried wastes included both drummed and un-drummed wastes.

As a result of the wastewater pond overflow, the Florida Department of Environmental Regulation and the EPA initiated investigations in early 1981. In December 1980, all production operations were stopped at the Tower Chemical Company and the facility was decommissioned in 1981.

In August 1980, EPA conducted a preliminary hazardous waste site investigation of the Tower Chemical Site. The site received a Hazardous Ranking System (HRS) score of 44.03. As a result of the HRS score, the Tower Chemical Company Site was proposed for inclusion on the National Priorities List (NPL) in October 1981. The site was finalized on the NPL in December 1992.

After closure of the Tower Chemical Company, two new businesses were opened on the main facility. Classic Manufacturing Company and Vita-Green, Inc. From 1981 to 1986, Classic Manufacturing used about one acre of the main facility for the manufacture of plastic worm fishing lures. After leasing another portion of the site, Vita-Green, Inc. moved onto the site in September 1981. This company blended and packaged potting soils for home garden use. Vita-Green, Inc. ceased operating at the site sometime in 1998.

Following a recommendation from the Agency for Toxic Substances and Disease Registry in 1983, the former burn/burial area and wastewater pond were excavated to an average depth of eight feet. Two thousand five hundred cubic yards of contaminated soil and sediment, as well as 72 buried drums were removed from the site by EPA. In the process, one million gallons of pond water and groundwater were treated. In 1986, EPA concluded a remedial investigation/feasibility study (RI/FS), which led to the signing of a ROD in July 1987. The ROD selected as remedies for the site onsite incineration of the site's contaminated soil and treatment of the surficial aquifer

groundwater While the design of the selected remedy was proceeding, two additional removal actions took place. The first one took place in 1988 and involved the demolition of two storage tanks containing hazardous wastes. At that time, EPA had about 500 cubic yards of soil excavated from beneath these tanks and moved to a fenced-off area on the site. The third and final removal action took place between September 1989 and July 1990. During that removal, 12,000 gallons of pesticide-contaminated water was disposed of offsite. In addition, the nearest residential potable water well was abandoned and a deeper well was installed. This was done because the miticide, dicofol, was found in a potable water sample.

The design of the ROD's selected remedy was concluded in August 1990. In August 1991, before the remedy was to be implemented, additional soil sampling occurred, with the goal of refining exactly where soil excavation was to take place. The results were unexpected, since the site's most hazardous contaminant, dicofol, was no longer found at the concentrations detected previously. At this point, EPA and FDEP reconsidered implementing what was to be an approximately $15 million remedy.

A series of investigations followed, culminating in the 1999 Tower Chemical Reassessment Report. This report documented the near absence of dicofol at the site, relatively modest levels of pesticides in the site's surface soil and persistent groundwater contamination in both the onsite surficial aquifer and the deeper Floridan aquifer.

Enforcement Activities

As a result of the damages caused by the wastewater pond overflow in June 1980, FDER. ordered the Tower Chemical Company to cease all discharges from the site. The Tower Chemical Company responded to the Order and assured FDER of compliance. In July 1980, the State Circuit Court ruled that the Tower Chemical Company could continue to operate only if the company met the FDER requirements. Thereafter followed a period of fruitless negotiations between the Tower Chemical Company and FDER. This occurred while FDER pursued legal action against the owner of the Tower Chemical Company, Mr Ralph Roane.

In June 1982, FDER, Tower Chemical, Mr. Ralph Roane agreed to the entry of a Consent Final Judgement in which the Tower Chemical agreed to pay compensatory damages of $10 million and Mr. Roane was to pay $40,000.

After initially agreeing to develop a feasibility study for the site remediation, the Tower Chemical Company failed to do so. In addition, neither Mr. Roane nor the company paid the court-ordered judgement. At the request of FDER, management of the site was transferred from FDER to EPA in 1983.

In June 1983, EPA issued a CERCLA Section 106 Administrative Order to the potentially responsible parties (PRPs), requiring a surface clean-up of the site. The PRPs failed to comply with the Order. As a consequence, EPA conducted a fund-financed removal action in 1983.

3.0 COMMUNITY PARTICIPATION

Community relations efforts for the Tower Chemical Company Site began in September 1984 when EPA finalized the site's Community Relations Plan. Area residents were contacted as part of the community relations work. At the time, residents expressed concern for both health and non-health issues. Community interest in the site was described as limited.

An information repository was established at the Cooper Memorial Library, located in the Town of Clermont. Documents supporting both the 1987 ROD and this IAROD were made available to the public at the site's information repository, prior to the issuance of both RODs.

In preparation for both the 1987 and the May 2000 public meetings, fact sheets were sent to residents living in the vicinity of the site and interested parties. The fact sheets provided a summary of the remedial alternatives evaluated by EPA and FDEP for remediating soil and groundwater contamination present at the site. In the case of this IAROD, the fact sheet evaluated the interim measures, designed to minimize exposure to the site while the necessary data is being updated and interpreted, in order to arrive at a final solution of the site's soil and groundwater contamination.

In September 1986, a public meeting was held, in order to discuss the findings of the RI/FS. The public meeting initiated a three week public comment period, which closed on October 7, 1986. Attendance at the meeting was described as moderate. Several written comments were received.

In May 2000, the Proposed Plan public meeting was held in order to present the two alternatives considered for the interim action. Approximately 35 residents attended the meeting. Only four written comments were received. These comments are addressed in the Responsiveness Summary section of this IAROD.

Between the issuance of the of the 1987 ROD and the May 2000 proposed Plan Fact Sheet, six update Fact Sheets were mailed by EPA to the community and interested parties, in order to keep them informed.

4.0 SCOPE AND ROLE OF OPERABLE UNIT

Past Response Actions

As discussed in Section 2, from 1983 through 1990 three removal actions took place at the Tower Chemical Site. The 1983 removal action mitigated the most highly contaminated portions of the site, the former wastewater pond and the burn/burial area. Excavation of the contaminated soil at the burn/burial area extended to approximately eight feet below ground surface. A total of 2,220 cubic yards of contaminated soil and pond sediment were removed and shipped offsite to a hazardous waste landfill.

The 1987 ROD selected as a remedy onsite incineration of an estimate 4,000 cubic yards of contaminated soil and treatment of the surficial groundwater. Treatment of groundwater was to be limited to the surficial aquifer because, at the time, it was believed that the water quality of the Floridan aquifer had not been impacted by the activities of the Tower Chemical Company.

In August 1991, as a result of post-remedial design sampling of the site's soil for better definition of the volume of soil destined for incineration, analytical results showed considerably lower concentrations of dicofol, the most toxic soil destined for remediation. Rather, the degradation product 4,4'-dichlorobenzophenone was found to have replaced dicofol soil as the most highly concentrated soil contaminant, At this point, all plans to remediate the site were halted pending further evaluation of the data.

Dicofol continued to be reported in the site's groundwater until 1998, when no dicofol was reported in any of the surficial or Floridan aquifer monitoring wells. The most recent round of groundwater sampling which resulted in dicofol being reported took place in 1995. It is currently believed that changes in analytical techniques between the mid-to-late 1980s and/or a sensitivity to the possible misidentification of DCBP as dicofol, has resulted in the predominant groundwater contaminant being identified as DCBP.

Interim Proposed Activities

This IAROD is for the second operable unit at the site, since the first operable unit was never implemented for the reasons described above. Through this IAROD for the Tower Chemical Superfund Site, EPA and FDEP will address offsite groundwater contamination present at the site. The planned action is believed to be necessary to protect residents living in the immediate vicinity of the site who consume the local groundwater, until a final groundwater remedy is selected. This interim action will neither be inconsistent with, nor preclude, implementation of the final remedy.

Future Response Action Plans

It is anticipated that the remaining soil and groundwater contamination on and in the

immediate vicinity of the site will be the subject of another operable unit(s) at a later date. At this time, the 1987 ROD, which was never implemented, will be amended.

5.0 SITE CHARACTERISTICS

5.1 Site Area

The abandoned Tower Chemical Site property is nearly 15 acres in size. On the property, part of which is fenced off, there exits the remnants of the production building, a small utility building, an office and the two former disposal areas: the burn/burial area and the acidic wastewater pond. As a result of the early 1980s removal action, both the former burn/burial and wastewater pond were further fenced off.

The overgrown site is relatively flat, with only about five feet of relief, descending from south to north. Drainage flows into a swampy area which eventually drains into an unnamed stream north of the site which, in turn, drains into the Gourd Neck area of Lake Apopka.

At the time of the writing of this IAROD, approximately eight residences are located within 1,200 feet of the site. The closest residence is located two hundred feet from the burn/burial area.

5.2 Geology and Hydrogeology

Surficial Aquifer

The uppermost water bearing formation is the surficial aquifer (Figure 3). Throughout most of the site, the surficial aquifer generally consists of fine-to-medium quartz sand, with varying amounts of silt and clay. Water in the surficial aquifer is present under unconfined conditions. In swampy, lowlands, such as the site, the water table is generally at or near land surface throughout most of the year. Between forty and seventy feet below land surface, the sands of the surficial aquifer grade into the dark and dense clays of the Hawthorn Formation, which acts as the overlying confining unit for the limestones that constitute the Floridan aquifer system

The surficial aquifer is recharged by local rainfall, irrigation, some lakes, ditches and streams, septic tank effluent and sewage or storm water holding pond effluent. When the potentiometric surface of the Upper Floridan aquifer is above the water table, upwards leakage from the Upper Floridan can take place. At times, a number of the Upper Floridan monitoring wells have been observed to be under flowing artesian conditions. Water can leave the surficial aquifer by (1) seepage to some lakes, ditches and streams; (2) by evapotranspiration where the water table is near land surface; (3) by pumpage; and (4) where the potentiometric surface of the Upper Florida is below the water table, by downward leakage to the Floridan. In the vicinity of the Tower Chemical Site, the surficial aquifer is little used because relative to the Floridan aquifer system, its permeability is low, resulting is low well yields. In addition, the water quality of the surficial aquifer is of inferior quality due to its high iron content and dark color.

GENERALIZED STRATIGRAPHIC COLUMN
TOWER CHEMICAL SITE
FLORIDA
(MODIFIED AFTER NUS FINAL RI/FS REPORT 1983)

SYSTEM	FORMATION	THICKNESS	LITHOLOGY
LATE AND POST MIOCENE	UNDIFFERENTIATED SURFICIAL CLASTICS	7-480 FT	SAND AND CLAYEY SAND WITH DISCONTINOUS LENSES OF CLAY.
MIOCENE	HAWTHORNE FORMATION	6-160 FT.	UPPER: CLAY WITH SANDY CLAY, LOCALLY PHOSPHATIC. LOWER: INTERBEDDED CLAY LIMESTONE, DOLOMITE OR DOLOMITIC LIMESTONE, GRAY PHOSPHATIC.
EOCENE	OCALA LIMESTONE	30-120 FT.	LIMESTONE, RELATIVELY PURE, WHITE TO LIGHT BROWN. JOINTING AND FRACTURING MAYBE PRESENT.

ADAPTED FROM ERASCO, 1989

Tower Chemical Site RAC VIII Clermont, Florida	Generalized Stratigraphic Column	Figure No. 3
CDM Federal Programs Corporation A subsidiary of Camp Dresser & McKee Inc.		

G:\Work\Tower Chemical\StratColumn.dwg - 11-16-99 14:13

Floridan Aquifer

In the vicinity of the site, the Florida aquifer system is composed of a sequence of limestone and dolomitic limestone that is approximately 2,100 feet thick. The top of the Floridan aquifer system is defined as the first occurrence of vertically persistent, permeable, consolidated, carbonate rocks. The top of the Floridan aquifer system is found at between 55 and 190 feet below ground surface.

Although a few low-relief faults have been mapped regionally on the top of the Floridan aquifer system, none have been recognized in the vicinity of the site. Rather, considerable relief is caused by subsurface subsidence. Subsurface subsidence is caused by the gradual dissolution of limestone and collapse of the overlying sediments into the volume previously occupied by the limestone. A relic sinkhole is believed to exist beneath the former wastewater pond. Here, the clay of the Hawthorn Formation is absent and the sands of the surficial aquifer are in direct contact with the limestones of the Upper Floridan.

Regional potentiometric surface maps of the Upper Floridan show a strong northeasterly flow, although water level measurements have indicated westerly flow in the northwestern portion of the site.

5.3 Sampling Strategy

The Tower Chemical Site has been sampled on many occasions since the mid-1980s. All possible media have been sampled, including air, surface and subsurface soil, surface water, sediment and groundwater. With the exception of air, all the other media have been impacted by the Company's activities. During the removal actions, sampling focused on the disposal areas, the wastewater pond and the burn/burial area. The following discussion will focus on the more recent data for the sampled media.

5.4 Surface and Subsurface Soil Contamination

The more recent data show contaminant concentrations have declined in the site's surface soil to near State of Florida residential standards. As compared to the surface soil, recent (1997 through 2000) subsurface soil data indicate that it is considerably more contaminated with volatile and semivolatile organic compounds, as well as pesticides and their degradation products. Site-related contaminants were found at the deepest soil interval sampled. This interval was immediately above the clay of the Hawthorn Formation, or approximately 30 feet below ground surface.

5.5 Surface Water and Sediment Contamination

Surface water analytical data exhibits contamination levels that are below detection limits for site-related contaminants. The mid-1990s sediment sampling of the unnamed tributary that

traverses the site and eventually discharges to the Gourd Neck area of Lake Apopka indicates low levels of site-related contaminants, with the exception of the portion of the stream located in the immediate vicinity of the site. Subsequent sampling of sediment in the immediate vicinity of the site showed that site-related contaminants had declined by orders of magnitude to less than one hundredth of a part million.

5.6 Groundwater Contamination

5.6.1 Onsite Groundwater Quality: 1998

During 1998 groundwater sampling, volatile organic compounds were detected almost exclusively in the surficial aquifer monitoring wells. The principal volatile organic contaminant detected was xylene. It accounted for up to 73 % of the target VOC load in the surficial aquifer groundwater samples. The highest concentration of VOCs were found in monitoring wells located in the vicinity of the former wastewater pond. Miscellaneous volatile organic compounds, principally sulfur compounds, were found in some of the surficial aquifer monitoring wells.

Only one of the 15 Floridan aquifer groundwater monitoring wells sampled contained detectable concentrations of VOC's. This well is located near the northwest part of the former wastewater pond. Xylene comprised approximately 26% of the total target VOC load in this well.

Modest concentrations of target semivolatile organic compounds were detected in both the surficial and Floridan aquifer monitoring wells. Three out of the five target semivolatile compounds were phenolic compounds. In contrast to the target compounds, the miscellaneous semivolatile organic compounds were present at substantially higher concentrations. The majority of these contaminants were found in surficial aquifer monitoring wells. The highest concentration of these miscellaneous semivolatile organic compounds were found in surficial aquifer monitoring wells in the vicinity of the former wastewater lagoon.

No target pesticide contaminants were found in either the surficial or Floridan aquifer. DCBP, however, was detected in all the surficial aquifer monitoring wells sampled. DCBP concentrations were remarkably similar across the site, ranging from 230 to 240 parts per billion (ppb). In the Floridan aquifer, DCBP was found at low concentrations or below detection limits in all except two of the onsite monitoring wells, which contained 560 ppb of DCBP. These wells are located in the vicinity of the former wastewater lagoon.

Metals concentrations in groundwater were not found to be of concern.

5.6.2 Offsite Groundwater Quality: 1993 through 1999

On six occasions between October 1993 and July 1999, EPA sampled both potable and groundwater monitoring wells at the Tower Chemical Site. The following discussion focuses on

the organic contaminants detected in the offsite monitoring wells, which entail both the surficial and Floridan aquifer wells, as well as the offsite potable water wells.

October 1993 Data

In October 1993, 16 offsite wells were sampled and analyzed. Of these, nine were monitoring wells and seven were potable water wells. Table 1 of Appendix A shows that low concentrations of purgeable organic compounds were found in monitoring well MWS-11. Xylene and chlorobenzene were found well below the State of Florida maximum contaminant levels (MCLs), which are 10,000 and 100 ppb, respectively. In addition, monitoring web MWS-10 and MWS-11 contained detectable concentrations of tentatively identified extractable compounds. Generally, MCLs do not exist for these tentatively identified compounds. One offsite potable water well, the Vetters#1 surficial aquifer well contained detectable concentrations of 1,1-dichloroethane and 1,1-dichloroethene. Both of these compounds were detected below the State of Florida MCLs for these compounds, which are 70 and 7 ppb, respectively.

October 1994 Data

In October 1994, seven offsite monitoring wells were sampled and analyzed. Four were surficial aquifer monitoring wells and three were Floridan aquifer monitoring wells. Table 2 of Appendix A shows that monitoring wells DS-07 and F-03 were found to have low concentrations of ethylbenzene and xylene, these concentrations were considerably below the State of Florida MCLs for these compounds, which are 700 and 10,000 ppb, respectively. Surficial aquifer monitoring well MWS-11 was found to contain four tentatively identified compounds. Dicofol, a miticide, was reported in two monitoring wells, one deep surficial aquifer well and one Floridan aquifer monitoring well. The current State of Florida groundwater criterion for dicofol is 0.4 ppb. There is some question as to whether dicofol was correctly identified. More recent sampling of both onsite and offsite groundwater wells shows the repeated total absence of dicofol and instead the presence of its degradation product DCBP. Limited review of historical chromatograms indicate that the EPA contract laboratories had identified a compound as dicofol when it should have been identified as DCBP.

March 1995 Data

In March 1995, four offsite surficial aquifer monitoring wells, three offsite Floridan aquifer monitoring wells and one potable water well were sampled. Table 3 of Appendix A shows that xylene was detected at low concentrations in three of the surficial aquifer wells and one of the three Floridan aquifer wells. Tentatively identified compounds were reported in two surficial aquifer monitoring wells, one Floridan aquifer well and the potable water well. One of the surficial aquifer monitoring wells was reported to contain dicofol. As stated immediately above, this may have been reported in error as dicofol.

March 1997 Data

In March 1997, the only wells sampled were potable water wells. These samples were analyzed for purgeable and extractable organic compounds, as well as pesticides and DCBP. No contaminants were detected in any of the four wells sampled.

March 1998 Data

In March 1998, five offsite monitoring wells were sampled (Table 5, Appendix A). Three of these wells were Floridan aquifer monitoring wells. In addition, five potable water wells were sampled. All the groundwater wells were analyzed for purgeable and extractable organic compounds, pesticides, as well as dicofol and DCBP. Two potable water wells were found to contain bis(2-ethylhexyl) phthalate. This extractable compound is a common field contaminant introduced into a sample through the use of latex gloves while sampling. As such, it is not believed to be a groundwater contaminant present in these wells. The only other organic contaminant found during the March 1998 sampling was DCBP which was detected at concentrations of less than one ppb in four out of the five monitoring wells and one of the five potable water wells sampled. Currently, a drinking water standard does not exist for DCBP, however, as discussed below, a provisional reference dose has been developed for DCBP.

July 1999 Data

In July 1999, six potable water wells were sampled (Table 6, Appendix A). All groundwater samples were analyzed for purgeable and extractable organic compounds, as well as pesticides, dicofol, DCBP and chlorobenzilate. Only one well had a detectable concentration (0.01J ppb) of the pesticide lindane. The State of Florida MCL for lindane is 0.2 ppb.

6.0 CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES

Land Uses

Currently the site is abandoned. The main building in extreme disrepair. The sides of the building a missing and most of the metal roof is in the process of being blown off. Over the past four years there have been periodic inquiries by prospective buyers into the future plans for the land. Both Mr. Ralph Roane and his successor are deceased. Taxes have not been paid to the County for a number of years. EPA has a lien on the property for the funds spent on the removal actions. The site is surrounded on all directions, except the west, by residences. Distances from the site to these residences range from 200-to-1500 feet.

Groundwater Uses

At this time, the homes surrounding the site are not serviced by municipal water, rather, each residence in services by a Floridan aquifer well, although at least one surficial aquifer well is know to exist near the site. In the early 1990s, the closest of these well was deepened by EPA when trace concentrations of a miticide were detected in that groundwater well. There exists ample space for additional residences to be built in the vicinity of the site and across State Route 455.

Under an agreement between the Town of Clermont and the developer of the residential community, located about one quarter of a mile north of the site, there is a plan to extend the nearest water line in a southerly direction, once a certain number of homes are built.

7.0 SUMMARY OF SITE RISKS

An Exposure and Risk Assessment of the site, finalized in 1985, focused on soil and groundwater ingestion. This assessment used quick-turn-around data from two onsite surficial monitoring wells and one offsite Floridan aquifer groundwater monitoring well to estimate the risk posed by the site. Of the 16 groundwater contaminants evaluated, 12 were volatile compounds, three are undetermined and one is not a volatile organic compound. It is not clear from the report why DCBP or dicofol, as well as the other groundwater contaminants known to have been present at that time were not evaluated.

The 1985 Exposure and Risk Assessment concluded that the excess cancer risk resulting from consumption of the site's groundwater was 3.1×10^{-5}, as a result of ingestion of chloroform and benzene. The Assessment went on to note that no fate and transport models were used to compute offsite levels and recommend that groundwater monitoring be continued.

7.1 Human Health Risk

A supplemental risk assessment will be concluded in the near future to evaluate the potential current and future risks associated with exposure to the site contaminants. This risk assessment will use the recent (post-1997) soil and groundwater data.

The rationale for EPA and FDEP proposing and selecting an interim remedy is found in the more recent analytical data generated from sampling the offsite monitoring and potable wells. The offsite groundwater data presented in Appendix A shows that site-related contaminants have been detected in offsite monitoring and potable water wells. Of the contaminants shown on Tables 1 through 5 of Appendix A, xylene and DCBP are the two contaminants that have been found with the greatest frequency in offsite surficial, and Floridan aquifer monitoring wells. Xylene has been detected seven times in offsite wells and DCBP has been detected on eight occasions. As shown on Tables 1 through 5 of Appendix A, xylene concentrations have been modest relative to the 10,000 ug/L State of Florida maximum contaminant level.

The groundwater standard for DCBP is not as straightforward since not much toxicological information is currently available for this compound. At the request of EPA Region 4, a provisional reference dose has been developed for DCBP by the EPA Superfund Health Risk Technical Support Center, since it is the principal degradation product of chlorobenzilate, one of Tower Chemical's two principal products. DCBP is currently the principal soil and groundwater contaminant at the site. EPA's request resulted in the development of a Risk Assessment Issue Paper for Derivation of RfD Derivation, and Evaluation of RfC and Cancer for 4,4'-Dichlorobenzophenone. This Issue Paper has been placed in the Administrative Record. In the absence of adequate toxicity or carcinogenicity data for DCBP, a surrogate approach was investigated through the Issue Paper. This approach attempted to identify a structurally and functionally similar chemical with adequate toxicity information to be used as a surrogate for DCBP. Chlorobenzilate was selected as the surrogate. The Issue Paper concluded that the non-

cancer toxicity of DCBP was not severe and suggested that a provisional RfD might approximate 3E-2 mg/kg-day, which is similar to that of chlorobenzilate. Although the Issue Paper acknowledged that there is a paucity of cancer-related data with regard to DCBP, it noted that DCBP is not believed to inhibit intracellular communication, a mechanism for tumor promotion. Because the available data are inconclusive to assess human carcinogenicity, DCBP was classified as a Group D carcinogen, in the weight-of-evidence category.

Considering the uncertainty of the carcinogenic properties of DCBP, the FDEP recommended that the residents near the site should be protected from exposure through their drinking water.

8.0 REMEDIAL ACTION OBJECTIVE

The remedial action objective for the potable water available in the immediate vicinity of the site is to minimize the risk posed by offsite migration of site-related groundwater contaminants. This will be accomplished through either extension of a water line to provide an alternate water supply to local residents or by implementing well-head treatment of the potable water wells, located in the immediate vicinity of the site and drawing water from the Floridan aquifer. This interim measure will remain in place while a final response action for the site is developed.

9.0 DESCRIPTION OF ALTERNATIVES

Among the alternatives considered in the 1987 FS Report, the following have been reevaluated and updated for this interim action:

Alternative 1: No Action

Alternative 2: Groundwater Monitoring and Well-Head Protection

Alternative 3: Groundwater Monitoring and Municipal Water Line Extension

9.1 Description of Remedy Components

Alternative 1: No Action
(Estimated present worth total cost: $0)

- The No Action alternative was required to be evaluated as a baseline for comparison with the other alternatives. Under these alternatives, no activities would occur at the site. This remedial alternative would not include any measure to remove, treat or contain soil contamination or restrict further migration of groundwater contamination offsite or to the Floridan aquifer. If implemented, this alternative would be considered the final remedy and would not involve any periodic reviews to verify its protectiveness.

Alternative 2: Groundwater Monitoring and Well-Head Protection
(Estimated present worth total cost: $169,000)

- Alternative 2 includes annual monitoring of six surficial and six Floridan aquifer monitoring wells surrounding the site. The wells sampled will be analyzed for volatile organic compounds, pesticides and contaminants previously associated with the site, including dicofol, DCBP, and related contaminants. Groundwater monitoring will be performed in order to make sure that EPA, FDEP and the nearby residents are aware of any contamination migration in both the surficial and Floridan aquifers.

- In addition to groundwater monitoring, Alternative 2 will provide for well-head protection at approximately seven of the nearest residences that contain wells which have shown contamination in the past or might become contaminated in the short-term. Groundwater contaminants migrating in the Floridan aquifer beyond the area immediately surrounding the site will likely dilute to non-detectable concentrations, given the recently observed low concentrations of site-related contaminants in offsite, monitoring and potable water wells and the location of the groundwater contaminant plume relative to the next likely receptors. Carbon filters will be installed at the private wells on these approximately seven off-site properties. Use of carbon adsorption involves contacting the well water with granular activated carbon, which selectively adsorbs organic material by physical and/or chemical forces. When the carbon reaches its ultimate capacity for adsorption, it is

removed from its container for disposal or regeneration. Periodic replacement or regeneration will be required to maintain the effectiveness of the carbon filters. Since the contaminant concentrations found in the offsite wells is low, it is expected that filter maintenance will be infrequent.

Alternative 3: Groundwater monitoring and municipal water line extension
(Estimated present worth total cost: $329,000)

- Under this alternative, groundwater monitoring will occur as described above for Alternative 2.

- Rather than installing seven carbon filter units for well-head protection, under this alternative, the Town of Clermont's closest water line, located on State Route 50, will be extended in a northerly direction, to provide a safe water supply for nearby residents. Alternative 3 requires the installation of 2,350 feet of 16-inch ductile iron water line along State Route 455. Service lines to the seven nearby residences will then be installed. Once constructed and hook-up is completed, maintenance costs and user fees will become the responsibility of the municipality and the residents.

9.2 Common Elements and Distinguishing Features of Each Alternative

Alternative 1- No Action: Under the No Action alternative, no further action would be taken at the site. Therefore, it has no common elements and will not be discussed further in this section.

ARARs Associated With Alternatives 2 and 3:

The following ARARs are either chemical or location-specific and would be associated with all the alternatives evaluated.

1. Safe Drinking Water Act (SDWA) Maximum Concentration Limits (MCLs) (40CFR 141);
2. Occupational Safety and Health Standards (29CFR Parts 1910.120 and 1926); and
3. Florida Drinking Water Quality Standards Title 62 Chapter 550.

At most, Alternatives 2 and 3 would trigger the preceding ARARs since this interim action is limited in scope.

10.0 COMPARATIVE ANALYSIS OF ALTERNATIVES

Overall Protection of Human Health and the Environment

Overall protection of human health and the environment addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced or controlled, though treatment, engineering controls, and/or institutional controls.

With the exception of the No Action alternative (Alternative 1), alternatives 2 and 3 will provide protection for human health. Alternative 2 will treat the groundwater at the well-head, thus preventing possible human exposure to site-related groundwater contaminants. Alternative 3 will achieve the same result by discontinuing use of well water by the residents located near the site. Since Alternative 1 did not pass this threshold criteria for providing protection of human health and the environment, it will be eliminated from further consideration.

Compliance with ARARs

Section 121 (D) of CERCLA requires that remedial actions at CERCLA sites attain legally applicable or relevant and appropriate federal and State requirements, standards, criteria and limitations which are collectively referred to as "ARARs", unless such ARARs are waived under CERCLA, Section 121(d)(4). The ARARs associated with alternatives 2 and 3 are listed on page 21.

Alternative 2 would be designed to remove any organic contaminants migrating from the site in the Floridan aquifer. Under this alternative, groundwater monitoring will ensure that contaminants do not pass through the carbon filters. There are no obvious ARARs associated with Alternative 3.

Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence refers to the expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. This criterion includes the consideration of residual risk and the adequacy and reliability of control.

Under this interim action, long-term effectiveness and permanence are not expected to be achieved, rather this remedy is intended to, in the near-term, protect the residents living in the immediate vicinity of the site whose only source of drinking water is the Floridan aquifer. Long-term effectiveness and permanence with be the subject of a subsequent ROD.

Reduction of Toxicity, Mobility and Volume

This criterion refers to reduction of contaminant toxicity, mobility, or volume through

treatment to the anticipated performance capabilities of the treatment technologies that may be included as part of a remedy.

Alternative 2 is expected to be as effective as Alternative 3 in removing any potential contaminants that may migrate from the site and be drawn into the potable water wells located in the vicinity of the site. This alternative would not effect the mobility and volume of the contaminant mass that exists at the site but would reduce the toxicity of the contaminants on the groundwater wells of the offsite residences fitted with carbon filters. Addressing the contaminant mass will be the subject of a subsequent ROD. Alternative 3 would not reduce the toxicity, mobility or volume of the contaminants, rather it would simply substitute municipal water for the local groundwater the source of water for the residents living near the site.

Short Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy, as well as any adverse impacts that may be posed to workers and the community during construction and operation of the remedy.

During the implementation of both Alternatives 2 and 3 onsite workers and people surrounding the site will be protected from possible impacts caused by the construction activities. Since Alternative 2 would not require construction, but only the addition of carbon filters to approximately seven groundwater wells, this alternative is protective in the short term. Alternative 3 will require the installation of approximately 2,350 feet of water lines and 940 feet of service lines. Thus, some disruption of traffic on State Road 455 is anticipated. It is expected that Alternative 2 could be implemented sooner than Alternative 3.

Implementability

Implementability addresses the technical and administrative feasibility of a remedy from the design phase through the construction and operation stages. Factors such as availability of services and materials, administrative feasibility and coordination with other governmental entities are considered.

The implementability of an alternative is based on technical feasibility, administrative feasibility and the availability of services and materials. Both Alternatives 2 and 3 are with readily available services and materials. Alternative 2 will require periodic monitoring of the groundwater treated with the carbon filters to make sue that (1) the carbon continues to remove any contaminants which may be present and that (2) breakthrough of contaminants has not occurred.

Cost

The estimated present worth cost for the two alternatives range from $169,000 for Alternative 2 to $329,000 for Alternative 3. Cost summaries are presented below in Table 10-1.

Table 10-1: Cost Comparison for Remedial Alternatives		
	Alternative 2	Alternative 3
Capital Cost	$ 40,400	$ 265,000
O&M Cost	$179,000	$ 100,000
Present Worth Total Cost	$169,000	$ 329,000

State Acceptance

The State of Florida requested this interim action in the course of assessing the toxicity of DCBP. In addition, the State of Florida reviewed and commented on the draft Proposed Plan and supports the selected remedy.

Community Acceptance

Based on the responses received during the public comment period, the majority of the community also supports the selected remedy. The public comments and EPA's responses are contained in the Responsiveness Summary, found in Appendix B.

11.0 PRINCIPAL THREAT WASTES

The NCP establishes an expectation that EPA will use treatment to address the principal threats posed by the site wherever practicable. Identifying principal threat wastes combines concepts of both hazard and risk. In general, principal threat wastes are those source materials considered to be highly toxic or highly mobile which generally cannot be contained in a reliable manner or would present a significant risk to human health or the environment, should exposure occur. Conversely, non-principal threat wastes are those source materials that generally can be reliably contained and that would present a low risk in the event of exposure. The manner in which principal threat wastes are addressed generally will determine whether the statutory preference for treatment as a principle element is satisfied.

Although the 1983 removal action abated some of the principal threats posed by the source material in the former wastewater lagoon and burn/burial areas, the subsurface soil remains unaddressed and pose a continuing source of groundwater contamination at the Tower Chemical Site. The subsurface soil will be addressed by the final remedy. This interim action, temporarily eliminates the risk posed by migration of groundwater contaminants to the nearby potable water wells until a final cleanup action is taken at this site.

12.0 SELECTED REMEDY

12.1 Summary of the Rationale for the Selected Remedy

Based on consideration of the requirements of CERCA, the NCP, an analysis of alternatives, and public and State comments, EPA has selected an interim remedy to address the offsite groundwater at the site. The purpose of this response action is to control risks posed by potential future exposure to groundwater contaminated with site-related contaminants. These contaminants have been observed to have migrated into the local drinking water aquifer, the Floridan aquifer, and have been detected over the past seven years in offsite potable and monitoring wells. Due to the uncertainty regarding the toxicity of DCBP, which has been detected in potable water wells, the risk-based drinking water standard for DCBP may be as low as 0.25 ppb or as high as 1,100 ppb, depending on whether the compound is a carcinogen or not. To ensure the remedy continues to be protective of human health, a review of the remedy will continue to be conducted every five years.

The selected interim remedy is believed to be the most effective remedial strategy, taking into consideration effectiveness versus cost. A discussion of the cost effectiveness of the remedy is provided in Section 10.0.

12.2 Description of the Selected Remedy

EPA's has selected Alternative 2, *Groundwater Monitoring and Well-Head Protection,* as the interim remedy for the Tower Chemical Site.

The preferred alternative would involve the following activities:

1) <u>Survey:</u>

All the potable well owners in the immediate vicinity of the site would be canvassed in an effort to determine whether they want their wells to be outfitted with carbon adsorption units. This would be done because, prior to the May 2000 Proposed Plan public meeting, some of the residents have indicated that they do not want to have the carbon units installed, believing that their wells are sufficiently deep to be at a minimal risk of becoming contaminated.

2) <u>Installation of Carbon Units</u>:

Currently there are nine residences existing in the immediate vicinity of the site. Approximately seven potable water wells service these residences. Those well owners that consent to have carbon units installed would have them installed. Since concentrations of contaminants are relatively low, the carbon units will be installed on the waterline entering the homes to treat only that water, since a substantial amount of well water is also used to irrigate vegetable gardens.

3) Monitoring

Periodic monitoring will be performed in order to ensure that the carbon units are effectively removing organic compounds to below State of Florida Drinking Water Standards or risk-based standards where the former do not exist, and to confirm that Floridan aquifer groundwater plume has not migrated beyond where it is currently recognized. This monitoring will involve the sampling of a select number of monitoring wells. In addition, a maximum of seven water wells outfitted with carbon units will be sample and analyzed for volatile and semivolatile organic compounds, as well as chlorobenzilate, dicofol and DCBP. Metals and the target pesticides will not be analyzed for since metals are not a concern at the site and, with one exception over the past seven years, pesticides have not been detected in any of the onsite or offsite groundwater monitoring and potable water wells. The frequency of monitoring will start out at once per year. Depending on the results of the first two years of monitoring, the frequency may be relaxed to every other rear.

12.3 Summary of the Estimated Remedy Cost

A detailed breakdown of costs for the selected remedy is presented below in Table 12-1. These are engineering cost estimates, that is expected to be within +50 to -30 percent of the actual projected cost. The estimated construction and O&M costs are $40,396 and $178,750, respectively. Present worth of the remedy is $168,919, using a discount rate of 7% over a ten year period. The information in this cost estimate summary table is based on the best available information regarding the anticipated scope of the interim remedial alternative. Changes in the cost estimate are likely to occur as a result of new information and data collected during the limited design of the interim remedial alternative. Major changes, if the occur, may be documented in the form of a memorandum in the Administrative Record, an Explanation of Significant Differences or a ROD Amendment.

12.4 Expected Outcome of the Selected Remedy

It is expected that once the potable water wells in the vicinity of the site are equipped with the carbon units, organic contaminants which have been detected in the offsite monitoring and potable water wells will be removed to below State of Florida Drinking Water Standards or risk-based standards where the former do not exist. As a consequence, the principal risk posed by the site to these off-site wells will be abated. The interim remedy will remain in place until the Supplemental RI and baseline risk assessment are concluded. If indicated by the baseline risk assessment, this interim remedy could continue to operate until a permanent remedy for the onsite subsurface soil and groundwater is designed and constructed.

Table 12-1: Cost Breakdown of Selected Remedy						
Tasks	No. Units per Event	Units of Measure	Unit Price	Extended Price/Event	Number of Events	Total Estimate
Two Add'l Mon Wells (2's/s x70')	2	Well	$6,723	$13,446	1	$13,446
Install Carbon Filters for Wells	7	Each	$3,850	$26,950	1	$26,950
Annual Monitoring (10yrs)						
Labor (2 per x 4 days x 10 hrs/day)	80	Hours	$75	$6,000	10	$60,000
Sample Supplies (bottle/coolers)	1	Each	$500	$500	10	$5,000
Travel Cost (lodging/per diem)	0	Each	$125	$0	10	$0
Analytical Costs (12 wells x 1 each)	10	N/A	$350	$3,500	10	$35,000
Total Costs				$10,000		$100,000
Carbon Replacement/ Monitoring	7	Each	$1,125	$7,875	10	$78,750
Total Absolute Costs						$219,146

13.0 STATUTORY DETERMINATION

13.1 Protection of Human Health and the Environment

The selected remedy will be protective of human health and the environment by eliminating the ingestion of any potential groundwater contaminants migrating from the site by the residents living near the site

13.2 Compliance with ARARs

The selected remedy will comply with all Federal and State of Florida requirements that are Applicable or Relevant and Appropriate Requirements (ARARs). The ARARs associated with the selected remedy are:

1) Safe Drinking Water Act (SDWA) Maximum Concentration Limits (MCLs) (40CFR 141) and State of Florida Drinking Water Standards, Monitoring and Reporting (Chapter 62-550). The SDWA and Florida Law provide groundwater MCLs that have been determined to be acceptable from the consumption of drinking water.

2) Occupational Safety and Health Standards (29CFR 1910.120 and 1926). These regulations set limits on exposure to workers on a hazardous waste site and set forth minimum health and safety requirements such as personal protection, training and reporting requirements.

13.3 Cost Effectiveness

In EPA's judgement, the selected remedy is cost effective and represents a reasonable value for the money to be spent. In making this determination, the following definition was used: *"A remedy shall be cost effective if its costs are proportional to its overall effectiveness.*" (40 CFR 300.430(f)(1)(ii)(D). This was accomplished by evaluating the "overall effectiveness" of those alternatives that satisfied the threshold criteria (i.e., were both protective of human health and the environment and ARAR-compliant). Overall effectiveness was evaluated by assessing three of the five balancing criteria collectively (long-term effectiveness and permanence, reduction in toxicity, mobility and volume through treatment and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its cost and hence represent a reasonable value for the money spent.

The estimated present worth cost of the selected remedy is $ 169,000. Alternative 3 is more expensive and would achieve the same level of protection. EPA believes that Alternative 2 will provide an overall protection of human health comparable to Alternative 3, but at a lower cost.

13.4 Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

This interim action is not designed or expected to be the final action at the site. The selected remedy represents the best balance of trade-offs among alternatives with respect to pertinent criteria, given the limited scope of the action. The preference for treatment will be addressed in the final operable unit(s) for the site.

14.0 DOCUMENTATION OF SIGNIFICANT CHANGE

There are no Significant changes in the ROD from the Proposed Plan.

APPENDIX A

Offsite Groundwater Data

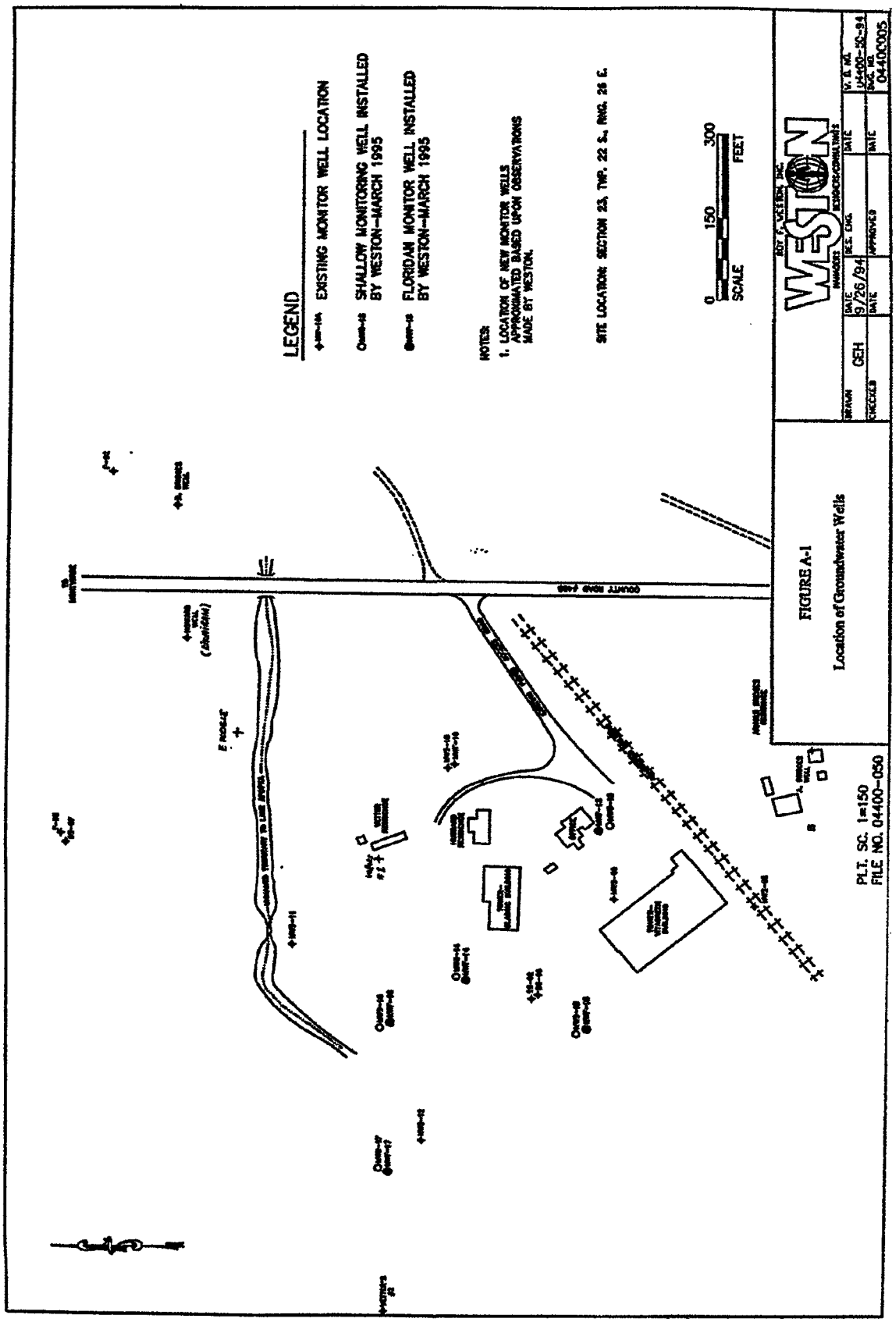

LEGEND
EXISTING MONITOR WELL LOCATION
SHALLOW MONITORING WELL INSTALLED BY WESTON–MARCH 1995
FLORIDAN MONITOR WELL INSTALLED BY WESTON–MARCH 1995
NOTES:
1. LOCATION OF NEW MONITOR WELLS APPROXIMATED BASED UPON OBSERVATIONS MADE BY WESTON.
SITE LOCATION: SECTION 23, TWP. 22 S., RNG. 26 E.
0
150
300
SCALE
FEET
COUNTY ROAD 4168
FIGURE A-1
Location of Groundwater Wells
PLT. SC. 1=150
FILE NO. 04400-050
WESTON
DRAWN
GEH
CHECKED
DATE
9/26/94
APPROVED
W.O. NO. 04400-20-94
DOC. NO. 04400005

Table 1

Contaminants Detected in Off-Site Groundwater Wells
Tower Chemical Site
Clermont, Lake County, FL

October 1993	Monitoring Wells										Potable Water Wells					
	MWS-08 surficial	MWS-10 surficial	MWS-11 surficial	DS-07 surficial	TW-01 surficial	TW-02 surficial	TW-03 surficial	TW-04 surficial	F-03 Floridan	A.Bridges Floridan	A.Hubbard Floridan	Howard Floridan	Vetter's#1 surficial	Vetter's Floridan	Harrison Floridan	R.Bridges Floridan
Purgeable Organics																
1,1-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2AJ	ND	ND	ND
1,1-dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.94AJ	ND	ND	ND
xylene	ND	ND	0.99J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
chlorobenzene	ND	ND	1.6J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Extractable Organics																
phosphoric acid, triethyl ester	ND	ND	10JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
imidazolidinethione	ND	ND	100JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
bromacil	ND	ND	10JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1 unidentified compound	ND	20J	40JN	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticides																
dicofol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-dichlorobenzophenone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Units are in parts per billion
ND - not detected

Table 2
Contaminants Detected in Off-Site Groundwater Wells
Tower Chemical Site
Clermont, Lake County, FL

October 1994

	Monitoring Wells						
	MWS-08 surficial	MWS-10 surficial	MWS-11 surficial	DS-07 surficial	F-02 Floridan	F-03 Floridan	MWF-10 Floridan
Purgeable Organics							
ethyl benzene	ND	ND	ND	0.7J	ND	ND	ND
total xylene	ND	ND	ND	3.17J	ND	1.1J	ND
Extractable Organics							
diphosphoric acid, tetraethyl ester	ND	ND	30JN	ND	ND	ND	ND
imidazolidinethione	ND	ND	100JN	ND	ND	ND	ND
bromacil	ND	ND	20JN	ND	ND	ND	ND
1 unidentified compound	ND	ND	40JN	ND	ND	ND	ND
Pesticides							
dicofol	ND	ND	ND	4.2J (1)	1.3J	ND	ND
cyanide	ND	ND	ND	ND	ND	ND	ND

(1) May have been 4,4'-dichlorobenzophenone
Units are parts per billion
ND - not detected

Table 3
Contaminants Detected in Off-Site Groundwater Wells
Tower Chemical Site
Clermont, Lake County, FL

March 1995	Monitoring Wells							Potable Water Well
	MWS-08 surficial	MWS-10 surficial	MWS-11 surficial	DS-07 surficial	F-02 Floridan	F-03 Floridan	MWF-10 Floridan	Hubbard Floridan
Purgeable Organics								
total xylene	IJ	6J	ND	2J	ND	9J	ND	ND
ethyl ether	ND	ND	6JN	ND	ND	ND	ND	ND
Extractable Organics								
dichlorobenzophenone	ND	2JN	6JN	ND	ND	ND	2JN	ND
triethyl phosphate	ND	ND	2JN	ND	ND	ND	ND	ND
chloro(methylsulfonyl)benzene	ND	ND	3JN	ND	ND	ND	ND	ND
imidazolidinethione	ND	ND	30JN	ND	ND	ND	ND	ND
chloroflurenol	ND	ND	3JN	ND	ND	ND	ND	ND
methylene bis(chlorobenzene)	ND	ND	ND	ND	ND	ND	3JN	ND
(chlorophenyl) (chlorophenyl) methanone	ND	ND	ND	ND	ND	ND	ND	3JN
1 unidentified compound	ND	ND	ND	ND	ND	ND	ND	100JN
Pesticides								
dicofol	ND	1.4J(1)	ND	ND	ND	ND	ND	ND

Units are parts per billion
(1) May have been 4,4'-dichlorobenzophenone
ND - not detected

Table 4
Contaminants Detected in Off-Site Groundwater Wells
Tower Chemical Site
Clermont, Lake County, FL

March 1997	Potable Water Wells			
	A.Hubbard	A.Bridges	R.Bridges	'Howard
Purgeable Organics	ND	ND	ND	ND
Extractable Organics	ND	ND	ND	ND
Pesticides	ND	ND	ND	ND
dicofol	ND	ND	ND	ND
4,4'-dichlorobenzophenone	ND	ND	ND	ND

Units are in parts per billion
ND - not detected

Table 5
Contaminants Detected in Off-Site Groundwater Wells
Tower Chemical Site
Clermont, Lake County, FL

March 1998	Monitoring Wells					Potable Water Well				
	MWS-10 surficial	MWS-10D surficial	MWF-10 surficial	F-02 Floridan	F-03 Floridan	A.Hubbard Floridan	R.Bridges Floridan	Rikhiram Floridan	A.Bridges Floridan	T.Hubbard Floridan
Purgeable Organics	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Extractable Organics										
bis(2-ethylhexyl)phthalates	ND	ND	ND	ND	ND	ND	ND	ND	13	35
Pesticides										
dicofol	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-dichlorobenzophenone	0.36	0.3[1]	ND	0.87	0.33[1]	ND	ND	0.037[1]	ND	ND

Units are in parts per billion
ND - not detected

Table 6
Contaminants Detected in Off-Site Groundwater Wells
Tower Chemical Site
Clermont, Lake County, FL

July 1999

	Potable Water Wells					
	A.Hubbard Floridan	Vetter's Floridan	E.Flogle Floridan	Rikhiram Floridan	R.Bridges Floridan	A.Bridges Floridan
Purgeable Organics	ND	ND	ND	ND	ND	ND
Extractable Organics	ND	ND	ND	ND	ND	ND
Pesticides	ND	ND	ND	ND	ND	ND
lindane	ND	ND	ND	0.01J	ND	ND
dicofol	ND	ND	ND	ND	ND	ND
4,4'-dichlorobenzophenone	ND	ND	ND	ND	ND	ND
chlorobenzilate	ND	ND	ND	ND	ND	ND

Units are in parts per billion
ND - not detected

APPENDIX B

Responsiveness Summary

APPENDIX B
Responsiveness Summary
Interim Action Record of Decision
Tower Chemical Site

The public comment period on the Proposed Plan for the Tower Chemical Site lasted from May 16, 2000 through June 15, 2000. The comments received during this time are summarized below. This responsiveness summary addresses the comments received during the public comment period.

1. One nearby resident mentioned that she preferred to have a carbon unit installed on her Florida well, rather than having her household tied in to the City of Clermont's municipal water system.

   EPA Response: EPA agrees that carbon units would provide the same level of protection that would be afforded by the extension of the water line and construction of branch lines from state route 45 to the individual residences.

2. A second nearby resident mentioned at the May 23rd public meeting her preference for the installation of a carbon unit, rather than extension of the municipal water.

   EPA Response: Please see the immediately preceding response.

3. A third nearby resident objected to the installation of a carbon unit, since she would only feel safe with City water. She requested that the Town of Clermont's water line be extended, along State Route 455 for the residents living near the site. In addition, she requested that all expenses involved with the providing of municipal potable water be paid for by EPA and that the only expense that the residents pay for is a monthly water bill.

   EPA Response: Carbon units would effectively remove the low-level organic contaminants being detected in the offsite monitoring and potable water wells. In addition, EPA would continue to monitor the residential wells to make sure that organic contaminants are removed by the carbon filters. Since only two of the residences living in the immediate vicinity of the site, both of whom draw from the same Floridan well, have requested for the extension of the municipal water line and construction of a distribution system, the carbon units make more economic sense than the water than the water line extension alternative. The carbon filters allow for flexibility in protecting those residents living near the site who desire the filters and monitoring only for the residents that do not wish either Alternative 2 or 3.

4. A fourth nearby resident, living two thirds of a mile from the site, mentioned that they were in favor of groundwater monitoring and water line extension.

EPA Response: Please see immediately preceding response.

5. The fifth and final commentor indicated that they would prefer to have City water, rather than the carbon filters.

EPA Response: The comment was made by a resident living two thirds of a mile from the site. Given the existing groundwater data, this residence would not be eligible for carbon unit or to be tied into the municipal water line.